TECHNOLOGY

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Implications of the Millenium Bug for Law Libraries

If your library is anything like the norm, I can safely assume that you rank somewhere between "not important" or "to be avoided" on the IT priority list and have had minimal communication or instruction from your IT department on procedures that should be followed to determine library system compliance with Year 2000 standards. If on the other hand your IT department has been proactive and implemented a Y2K (Year 2000) strategy for the library, count your blessings, take them out to lunch and skip the rest of this article

I have focused specifically on the effects of the Y2K bug on library systems, rather than the structure of the millenium bug which has been the subject of a plethora of articles in the press and IT journals

The levels, categories and examples discussed below all assume a date function performed on either a current or calculated future date greater than 31/12/1999

Law library software systems in particular, seem to suffer the common fate of not being regarded as vital information databases and consequently do not get the same attention as financial or marketing databases. This is due in part to the fact that commercial databases invariably do not keep hard copy duplicates of their record data, relying on the electronic data for screen and hard copy output. The collapse of a commercial database system means the organisation cannot continue to function. Hence the hype and tempest about the implications of a Y2K problem for mission critical applications.

Libraries are different. By keeping hard copy material they are in essence contributing to their own diminished IT priority. In order to understand possible failures due to the Y2K bug, I have separated Y2K failures into three levels of seriousness

Level 1

This is a hardware or system level failure where the system does not boot up at all or the system dates do not roll over beyond 31/12/99 or alternatively roll over to 01/01/00 or 01/01/10 or 01/01/01 Now you can begin to appreciate the problem. Although this level of failure is usually the most dramatic, resulting in the system not booting up or hanging, it is in fact the easiest to test and fix.

Level 2

Software failures can be divided into five categories:

I) *Operating System Software Failure* - e g operating system software does not recognise the system date as valid and hangs

II) *Program Hard Coded Errors* - e.g code in the programs prefixes all year values with a "19". The year 2000 then becomes either "1900" or "1901" or "1910" or "192000"

III) *Program Logic Errors* - e g. code in the programs checks for a valid year range of say 1980 to 1999 Any of the doozies above would be outside the range causing that particular program function to fail

IV) *Development Language Limitations* - early versions of developer languages may not cope with division or subtraction calculations on years values of 00.

V) *Database Field Definition Errors* - e g date data stored in incorrect format e g six digit dates, and other formats not accepted

Level 2 failures are a stage up in complexity and will usually result in the software or operating system not running or hanging when date related functions are encountered The defining characteristic of this level is that the software runs up to a point when it fails. The library system is still unusable, but there are no unseen data complications occurring since the process fails before it reaches the data manipulation stage If the problem is caused by the operating system, a simple upgrade will usually rectify the problem If the problem occurs in the library software a full Y2K investigation must be made or the software should be upgraded or abandoned

Looking at a level 2 scenario where the library catalogue system fails, every book or journal can still be accessed or loaned. The organisation would suffer a fall in productivity, but could continue to function In the case of more advanced libraries where there is significant reliance on crucial electronic data stored in databases the exposure to the millenium bug is greater, but not yet mission-critical because dates are more likely to be text data rather than integers used in date calculations.

Level 3

A level 3 failure is characterised by what appears to be normal operation, until a software date operation is encountered which either halts the system or even worse appears to be operating, but is in fact corrupting data or producing inaccurate information It is by far the most damaging and potentially costly level of failure and is the most difficult and complex to identify and correct It can be caused by any combination of software failure categories II, III, IV or V

The area of greatest level 3 failure for libraries is in the library management modules, where the total data is stored electronically within the database These modules include functions such as journals/serials management, purchasing, financial control and reporting and circulation management In these modules the use of date formats is critical because dates are used to calculate new dates, (serials projection lists and circulation management) or calculate cash amounts within date ranges (purchasing and financial

modules) Failure of these systems would result in significant loss in productivity, both for the organisation and the library staff who would experience an exponential increase in workload The greatest danger in this scenario however, is the potential for large scale data corruption which may go undetected for weeks or even months, making recovery from backups virtually impossible.

Having by now re-awakened a slumbering fear of computers in everyone, I can provide a measure of reassurance that while library management software modules are exposed to level 3 risk, most recent commercial system upgrades have included Y2K compliance. It is nevertheless still your responsibility as librarians to ensure that your system is evaluated for compliance I will also be outlining some simple low cost methods of checking your systems level of exposure in the next issue of the *Australian Law Librarian*.

In the interim if you are fortunate enough to have access to an IT department or external Y2K consultants don't wait, ask the question "am I OK for Y2K?"

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